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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,030	01/22/2007	Daniel Mansfield	AMTH-104US	9041
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P O BOX 980			LEE, HWA S	
VALLEY FORGE, PA 19482-0980				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/565,030

Applicant(s)

MANSFIELD, DANIEL

Examiner

Hwa S. Lee (Andrew)

Art Unit

2886

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/US)
- Paper No(s)/Mail Date 1/23/03 (2)
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-16, 18, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by de Groot et al. (US 2003/0011784 cited in IDS).

de Groot et al (de Groot hereinafter) show the measurement of complex surface shapes using a spherical wavefront comprising:

support means (e.g. 1222) for supporting a sample having a non-planar sample surface;

light directing (e.g. 1900) means for directing light from a broadband light source (110) to an interference zone along first and second light paths, the first light path including the non-planar sample surface and the second light path including a non-planar reference surface (e.g. 1932), wherein the light directing means comprises shaping means (e.g. 1932) operable

i) to shape the beam of light directed along the second light path to form a non-uniform reference light beam which is incident on the non-planar reference surface, wherein a wavefront of the reference non-uniform light beam substantially matches the non-planar reference surface (e.g. [0010], [0079]) and

ii) to shape the beam of light travelling along the first light path to form a non-uniform sample light beam which is incident on the sample surface, wherein the non-uniform sample light beam has a beam profile which substantially matches the beam profile of the non-uniform reference light beam (e.g. [0010], [0079]; moving means for causing relative movement between the sample surface and the non-uniform sample light beam (e.g. 1200); and compensating means (e.g. 134) for compensating for a difference between the path lengths of the first and second light paths caused by relative movement between the sample surface and the sample light beam so that light from portions of the sample surface which substantially coincide with a wavefront of the sample light beam and light from corresponding portions of the reference surface produce an interference pattern in the interference zone.

With respect to claims 2 -4, see figure 22.

With respect to claim 5, see e.g. 1940.

With respect to claims 6 and 7, see 1950.

With respect to claims 8-10, see e.g. [0107].

With respect to claims 11 and 12, see e.g. 1964

With respect to claim 13, see e.g. 1220 and 1200

With respect to claims 14-16, see [0043], [0077].

With respect to claim 18, de Groot shows:

a support operable (e.g. 1222) to support a sample having a sample surface;

an optical system (e.g. 1900) operable to direct light from a broadband light source to an interference zone along first and second light paths, the first light path including the sample surface and the second light path including a reference surface, wherein the optical system is operable to shape the beam of light travelling along the first light path to form a sample light beam which is incident on the sample surface, wherein the sample light beam has wavefronts which vary along the direction of propagation;

an actuator (e.g. 1220) operable to cause relative movement between the sample surface and the sample light beam; and

a compensator (e.g. 1200) operable to compensate for a difference between the path lengths of the first and second light paths caused by a relative movement between the sample surface and the sample light beam so that light from portions of the sample surface which substantially coincide with a wavefront of the sample light beam and light from corresponding portions of the reference surface produce an interference pattern in the interference zone.

With respect to claim 19, de Groot shows:

directing light from a broadband light (SLD) source to an interference zone along first and second light paths, the first light path including the sample surface (200) and the second light path including a reference surface (e.g. 1932), wherein the beam of light directed along the second light path is shaped to form a non-uniform reference light beam which is incident on the non-planar reference surface, with a wavefront of the reference non-uniform light beam substantially matching the non-planar reference surface, and wherein the beam of light travelling along the first light path is shaped to form a non-uniform sample light beam which is incident on the sample surface, wherein the non-uniform sample light beam substantially matches the non-uniform reference light beam;

causing relative movement (e.g. 1220) between the sample surface and the sample non-uniform light beam; and

compensating (e.g. 1932) for a difference between the path lengths of the first and second light paths caused by relative movement between the sample surface and the sample light beam so that light from portions of the sample surface which substantially coincide with a wavefront of

the sample light beam and light from corresponding portions of the reference surface produce an interference pattern in the interference zone.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over de Groot as applied to claim 14 above and de Lega and Deck (US 6,195,168 cited in IDS).

de Groot does not expressly show a bandpass filter for filtering light to 2 nm to 50 nm. de Lega shows surface profiling wherein a bandpass filter. At the time of the invention, one of ordinary skill in the art would have used a filter to filter light to be between 2 nm and 50nm in order for the light to be in the detectable range of the CCD.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hwa S. Lee (Andrew) whose telephone number is 571-272-2419. The examiner can normally be reached on Monday, Tuesday, Thursday, and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur R. Chowdhury can be reached on 571-272-2800. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hwa S. Lee (Andrew)/
Primary Examiner, Art Unit 2886